

REMARKS

In the present Amendment, claims 1 and 2 have been amended to recite that the aluminum plate is manufactured by a method including molten metal treatment and contains Cu of 0.032 to 0.040 wt%, rather than 0.020 to 0.040 wt%. These amendments are supported by the specification, for example, at page 106 and A1-13 in Table 1, as well at pages 64-65.

Claims 1 and 2 have also been amended to improve their form. These amendments are not to be deemed to narrow the scope of the claims.

Claims 15-21 have been amended to replace “the presensitized” with --the presensitized plate--, to be consistent with the base claims.

No new matter has been added and entry of the Amendment is respectfully requested. Upon entry of the Amendment, claims 1-21 will be all the claims pending in the application.

I. Form PTO/SB/08 A & B

The Examiner attaches to the Office Action a signed copy of the Form PTO/SB/08 A & B filed with Applicants’ Information Disclosure Statement of July 29, 2005. However, the Examiner did not initial in front of the documents under “Non Patent Literature Documents.”

The Examiner is respectfully requested to initial in front of the documents under “Non Patent Literature Documents,” on the Forms indicating that these references have been considered and made of record.

II. Response to Rejections Under 35 U.S.C. § 102

1. Claims 1-21 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Sawada et al. (JP 2000-037965) (“JP ‘965”).

Applicants respectfully submit that the present claims are novel and patentable over JP ‘965 for at least the following reasons.

JP ‘965 discloses a lithographic printing plate substrate that is subjected to surface roughening treatment, such as electrochemical roughening, at the surface and contains 0.05-0.5 wt% Fe, 0.03 -0.15 wt% Si, 0.006-0.03 wt% Cu and 0.010-0.040 wt% Ti.

In contrast, in the presently claimed invention, the aluminum plate contains Fe of 0.20 to 0.29 wt%, Si of 0.03 to 0.15 wt%, Cu of 0.032 to 0.040 wt% and Ti of 0.050 wt% or less.

The substrate of JP ‘965 does not meet the requirements of the present claims, in terms of the amount of Cu contained thereof. In addition, JP ‘965 does not suggest using a substrate containing Cu in an amount of 0.032 to 0.040 wt%.

Moreover, the present invention improves the surface shape, the press life and the scum resistance by containing Fe and Cu in specific amounts and combining them with surface treatment conditions. In addition, the present invention can reduce the content of Fe inter-metallic compounds and improve the sensitivity of the lithographic printing plate to be exposed by using a laser light source.

JP ‘965 does not disclose the surface shape after being subjected to specific surface roughening treatment, let alone the above-mentioned effects of the present invention.

In view of the foregoing, Applicants respectfully submit that the present claims are not anticipated or rendered obvious over JP '965 and thus the rejection should be withdrawn.

2. Claims 1-21 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Nishio et al. (EP 853 132 A1) ("EP '132").

Applicants respectfully submit that the present claims are novel and patentable over JP '965 for at least the following reasons.

EP '132 discloses an aluminum alloy support for a planographic printing plate containing 0.005-0.040 wt% Na, not more than 0.25 wt% Si, not more than 0.40 wt% Fe, not more than 0.05 wt% Cu, not more than 0.05 wt% Mn, not more than 0.05 wt% Mg, not more than 0.05 wt% Zn, and not more than 0.03 wt% Ti (page 3, lines 7-12).

In contrast, the aluminum plate in the presently claimed invention is manufactured by a method including molten metal treatment and thus inherently does not contain the sodium element, as described in the Japanese textbook of aluminum materials "Fundamentals of Aluminum Materials and Industrial Technology". For the Examiner's consideration, Applicants attach herewith a copy of the relevant pages and the English translation of the marked portion thereof.

Accordingly, the substrate of EP '132 does not meet the requirements of the present claims, in terms of the amount of Na contained thereof. In addition, EP '132 does not suggest using a substrate not containing Na.

Moreover, the present invention improves the surface shape, the press life and the scum resistance by containing various metals in specific amounts and combining them with surface treatment conditions. In addition, the present invention can reduce the content of Fe inter-metallic compounds and improve the sensitivity of the lithographic printing plate to be exposed by using a laser light source.

EP '132 does not disclose the surface shape after being subjected to specific surface roughening treatment, let alone the above-mentioned effects of the present invention.

In view of the foregoing, Applicants respectfully submit that the present claims are not anticipated or rendered obvious over EP '132 and thus the rejection should be withdrawn.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

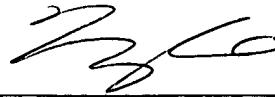
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Respectfully submitted,



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"Fundamentals of Aluminum Materials and Industrial
Technology" published by the Japan Light Metal Association,
1st edition, page 12, May 1, 1985

1.1.2 Molten metal treatment

Molten aluminum and molten aluminum alloys contain raw materials, hydrogen gas that is generated or incorporated therein in the melting process of the raw materials, inclusions such as oxides, and alkali metals such as sodium. These substances may be incorporated in malleable ingots or castings during the casting to deteriorate the ingot quality, and are also factors that may deteriorate various characteristics including the workability, mechanical properties and chemical properties of the resulting products, and moldability. Therefore, the molten metal treatment is carried out in order to remove the impurities as described below and achieve the molten metal quality with higher purity.

1. Hydrogen gas;
2. Inclusions: mainly aluminum oxide and magnesium oxide, and further coarse particles in a grain refining agent (Al-Ti-B), products during the molten metal treatment (chlorides, fluorides, nitrides, carbides), and foreign matter derived from a furnace material;

3. Alkali metals and alkaline earth metals: elemental impurities such as sodium, lithium and calcium.

Simensen²⁹⁾ は各種溶湯処理方法の非金属介在物除去効果についても遠心分離法および Coulter Counter 法を使って調べている。図 14 は $AlCO_3A469$ 法による $Al-Mg$ 合金溶湯中の酸化物の除去効果が Coulter Counter 法により測定されたもので、図 15 は SNIF 法による工業用 Al 溶湯中の酸化物の除去効果が遠心分離法により測定されたもので、いずれも大きなサイズの酸化物 (サイズについては酸化物を塩酸で抽出する Coulter Counter 法では酸化物粒の球径を、遠心分離法では光学顕微鏡で直接観察された酸化物フィクルスの最大径を示しており、両法の値をそのまま比較はできない) が有効に除去されていることが分る。

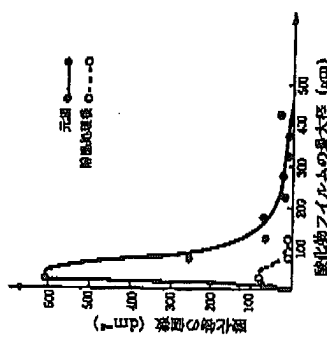


図 15 SNIF 法により処理された工業用 Al 中の酸化物のサイズ分布 (図 14 による)。解析は遠心分離法によってなされた。²⁹⁾

1.1.2 溶湯処理

アルミニウムおよびアルミニウム合金溶湯中には、原材料やその溶解過程で発生、混入する水素ガスのほかに酸化物などの介在物およびナトリウムなどのアルカリ金属が含まれている。これらの物質は鋳造の際、展伸用鋳塊や鋳物中に混入して鋳塊品質を損ねるだけでなく、その加工性や製品の機械的性質、化学的性質および成形性などの諸性能を低下させる要因となる。したがって、次のような混入物質^{30, 31)}を除去し、より清浄度の高い溶湯品質を得る目的で溶湯処理を行なう。

- ① 水素ガス
- ② 介在物：主としてアルミニウムやマグネシウムの酸化物、そのほか結晶粒微細化剤 ($Al-Ti-B$) 中の粗大粒子、溶湯処理中の生成物 (塩化物、弗化物、窒化物、炭化物) および炉材などから混入する異物。
- ③ アルカリ金属、アルカリ土類金属；ナトリウムやリチウムおよびカルシウムなどの不純物元素。(注)

a) 溶湯品質が材料特性に及ぼす影響

i) 鋳塊品質

鋳塊品質として最も懸念されるものはポロシティーである。ポロシティーの生成は水素ガス量との関係が強く、図 16³²⁾ に示すように、ポロシティー量とほぼ比例関係にある。ポロシティー量は合金組成および凝固速度にも影響される³³⁾。鋳塊中のポロシティー分布は通常鋳塊の厚さ方向に一定の傾向があり、DAS の分布にほぼ対応し中心部が多い傾向にある³⁴⁾。

ii) 表面品質

アルミニウム材料に発生するフクレは大きさが 5 mm 程度のものから、目視観察でやっ

(注) 鋳物、展伸材の合金の種類によってはこれらの元素を有効成分として添加する場合もある。

と識別できるものである。また、形状も単独で粒状のものとは線状に連なっているものなどがある。写真 7 に圧延板のフクレを示す。フクレの原因は主に鋳塊中の水素ガスが影響しているが、フクレの内面には介在物の存在も認められ、発生原因がガスのみでなく、異物の存在ともかわり合っている場合が多い³⁵⁾。ストリンガー (線状欠陥) もフクレと並んで外観不良の代表的なもので、これは主として介在物が原因で写真 8 に酸化物に起因するストリンガーを示す。ストリンガーは材料中の介在物が加工方向に伸ばされたもので、酸極酸化処理後の色ぬけや筋欠陥などの原因となる。

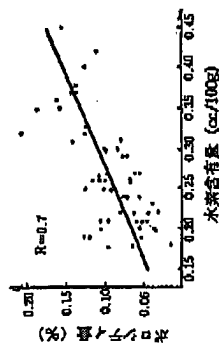
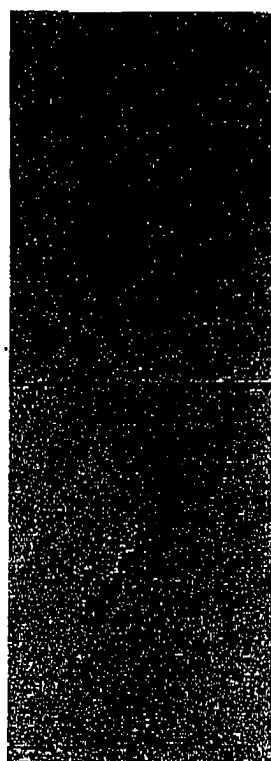


図 16 鋳塊の水素含有量とポロシティー量の関係³²⁾
2014 合金、ガス分析：窒素ガスキャリヤ抽出法 (NCF)，ポロシティー比重法



(a) 線状フクレ (×1.5)

写真 7 1050 合金圧延板にみられるフクレ外観の例



(b) おまけフクレ (×1.5)

写真 8 S050 合金圧延板の MgO 介在物原因ストリンガーの例

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